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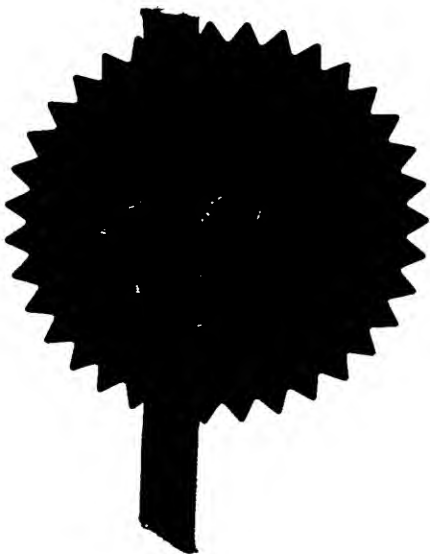
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Patents Form 1/77

The Patent Office
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Request for grant of a patent

23 SEP 1999

1. Your Reference	23 SEP 1999	RJP/JFB/Q207	
2. Application number	9922415.6		
3. Full name, address and postcode of the or each Applicant	Allied Bio Corporation Limited Providence Works Neild Street Oldham OL8 1QG 77466 96001 Incorporated in: United Kingdom		
Country/state of incorporation (if applicable)			
4. Title of the invention	STERILISING AGENTS AND METHODS		
5. Name of agent	APPLEYARD LEES		
Address for service in the UK to which all correspondence should be sent	15 CLARE ROAD HALIFAX HX1 2HY		
Patents ADP number	AA005* 190001		
6. Priority claimed to:	Country	Application number	Date of filing
7. Divisional status claimed from:	Number of parent application	Date of filing	
8. Is a statement of inventorship and of right to grant a patent required in support of this application?	YES		

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description 6

Claim(s)

Abstract

Drawing(s)

10. If you are also filing any of the following, state how many against each item

Priority documents

Translation of priority documents

Statement of inventorship and right to grant a patent (PF 7/77)

Request for a preliminary examination and search (PF 9/77)

Request for substantive examination (PF 10/77)

Any other documents (please specify)

11.

We request the grant of a patent on the basis of this application.
Signature Date

APPLEYARD LEES

22/09/99

Appleyard Lees

12. Contact

R J Pidgeon- 01422 330110

STERILISING AGENTS AND METHODS

This invention relates to sterilising agents, in particular to those which, when activated, form sulphur dioxide, and also to a method of sterilising substantially enclosed airspaces.

It is well known to use sterilising agents which form sulphur dioxide to sterilise enclosed spaces. Such agents have been used in a wide variety of applications including sterilisation of fermentation bins and sanitary bins.

In the case of fermentation bins, granules or tablets of the sterilising agent are dissolved rapidly in water in the fermentation bin, which quickly releases large quantities of sulphur dioxide for fast sterilisation.

In the case of sanitary bins, where there is only a small amount of moisture in the air and/or materials inside the bin, it is usual to add a portion of the sterilising agent in powder or granule form. The powder or granules have a large surface area which enables activation by the available moisture to form a sufficient amount of sulphur dioxide for sterilisation.

The powder or granules are usually added by sprinkling them on the bottom of the container, either from a porous container or by opening individual sachets of sterilising agent and pouring the powder or granules into the container.

However, when the sterilising agent is applied in this manner a certain amount of dust from the powder or

granules is generated, which can be harmful to a user if inhaled. People with bronchial afflictions, such as asthma, may be especially vulnerable to adverse effects from the dust.

5

Some sterilising agents for sanitary bins and the like are delivered as powder or granules in porous sachets, which allow moisture to penetrate the sachet and sulphur dioxide generated to diffuse out into the bins. However
10 this method of delivery does not prevent all the dust generated by the powder or granules inside the sachet from escaping into the surrounding atmosphere, creating a hazard to the user. Such dust and/or powder release may be particularly hazardous to people with bronchial
15 complaints, for example asthmatics. Furthermore, the porous sachets are prone to tearing.

It is therefore an object of the present invention to provide a sterilising agent which forms sulphur dioxide
20 upon activation with available moisture, in a form which does not produce harmful dust during insertion into an airspace.

It is a further object of the present invention to
25 provide a sterilising agent which slowly releases sulphur dioxide over a prolonged period of time for efficient long-term sterilisation.

Therefore, according to the present invention there is
30 provided a sterilising block comprising a sterilising agent for use in an airspace within a container, the sterilising agent comprising a sulphur dioxide activating compound, wherein moisture absorbed by the block reacts

with the sulphur dioxide activating compound to form sulphur dioxide.

Suitably the block is a tablet or solid gel block.
5 Preferably it is a tablet of consolidated powder or granules.

Preferably the block comprises a hygroscopic compound. A hygroscopic compound enables the sterilising agent to be
10 manufactured in a block with limited surface area, as it will absorb a sufficient amount of moisture from the air and/or waste materials within the airspace to activate the sulphur dioxide activating compound. The block should be such that it produces an insubstantial amount, and
15 preferably no, harmful dust when inserted into the airspace.

The sulphur dioxide may, preferably, be in gaseous form and/or may dissolve in water or an aqueous medium
20 present in the air space, and so act, in the form of sulphurous acid or a salt thereof, as a liquid sterilising agent.

Preferably the hygroscopic compound is a hygroscopic
25 alkylbenzenesulphonate. However, other types of hygroscopic material may be used.

Suitably the sulphur dioxide activating compound is a metabisulphite, preferably sodium metabisulphite or
30 potassium metabisulphite.

The sterilising agent may additionally comprise a fragrance and/or a colouring compound.

Suitably each block is supplied in its own sealed space. For example it may be individually wrapped or provided in "blister pack" form.

5

Alternatively blocks may be packaged together, preferably in a sealed container containing, separately, a hygroscopic agent (for example silica gel) able preferentially to absorb atmospheric moisture, and so prevent premature activation of the sulphur dioxide activating compound. Such a hygroscopic agent may also be employed when each block is supplied in its own sealed space.

15 Preferably the airspace is generally enclosed. Preferably the airspace is used for deposit or storage of solid materials, for example waste products.

Preferably the airspace is a sanitary bin.

20

Alternatively, the airspace may be a bandage box, a used sharps bin, a post box, a refrigerator, a body bag or a container used for the disposal or containment of any biological or contaminated waste.

25

When the airspace is a food refrigerator, the block is preferably placed in a non-airtight container to prevent accidental contact with food contained within the refrigerator.

30

The invention also provides a method of sterilising an airspace comprising the use of a block comprising a sulphur dioxide activating compound.

The blocks may be as defined and described above. Thus, blocks may further comprise a hygroscopic compound. However, the hygroscopic compound may not be essential in
5 this method, especially in situations when solid materials deposited in the airspace are themselves moist.

An example of the present invention employs compressed granule tablets of sodium metabisulphite and a hygroscopic
10 alkylbenzenesulphonate compound, formulated to sterilise a sanitary bin for a period of six weeks.

Another example employs sodium metabisulphite granules (or other metabisulphite) granules mixed with an inert
15 filler, for example powdered chalk, and compressed into blocks.

The reader's attention is directed to all papers and documents which are filed concurrently with or previous to
20 this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

25 All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features
30 and/or steps are mutually exclusive.

Each feature disclosed in this specification (including any accompanying claims, abstract and

drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

The invention is not restricted to the details of the foregoing embodiment(s). The invention extend to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.